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PRESS RELEASE

DELAWARE COUNTY ELECTRIC COOPERATIVE ANNOUNCES PROPANE FUEL CELL / ENERGY STORAGE PROJECT

Delaware County Electric Cooperative (DCEC) announced today an advanced-technology residential power generation project in Delaware County. Under a $300,000 grant provided in 2003 under a U.S. Congressional Earmark, DCEC will procure, install, test and demonstrate a highly efficient, clean energy project that will power a home in the Town of Tompkins, Delaware County, NY. In addition, as part of a joint New York State Energy Research and Development Authority (NYSERDA) and Department of Energy (DOE) Initiative, $175,000 will be provided for an integrated power electronics and energy storage system.

"We're very excited about this project" said CEO & General Manager Greg Starheim. "Fuel cells have been around for decades but significant advances have occurred over the last several years that have reduced the cost of the technology. Fuel cells offer significant benefits compared to traditional ways of generating power."

Rural electric cooperatives across the U.S. are interested in fuel cell and energy storage technologies. Often co-ops are requested by new members (customers) to provide electric service to extreme remote areas. With the cost of extending distribution being approximately $50,000/mile plus associated maintenance costs of keeping lines clear of vegetation and in-service, co-ops are investigating alternatives to "running wires" to homes in remote locations. "Local generation with on-site energy storage may be an attractive alternative" said Mark Schneider, Manager of Engineering at DCEC, "and fuel cells offer the opportunity to generate power quietly, efficiently and without environmentally-damaging emissions typical of most fossil-fueled power stations."

In 2003, DCEC was awarded the Earmark that was granted by the U.S. Appropriations Committee. Congressman Maurice Hinchey was instrumental in securing the funding for this project. The project was awarded to investigate the viability of fuel cells for such rural

applications. Along with the integrated storage system, provided by the NYSERDA/ DOE Joint Energy Storage Initiative, this project demonstrates cooperation and is partnership across many entities. "This project is a wonderful collaboration between Congress, Federal and State Agencies, a rural electric cooperative, and private enterprise. The result will be a pioneering energy system providing clean reliable electricity here in Delaware County and giving an example to the rest of the country." Said Dr. Imre Gyuk, Manager of DOE's Energy Storage Research program.

After a thorough review of residential-sized fuel cell technology suppliers, DCEC selected Plug Power Inc., Latham, NY, due to their technology leadership position in the market. Plug Power is working closely with DCEC on the project. Jointly they will monitor the performance of the fuel cell over the course of the demonstration period. "This is a great opportunity for us to gain additional knowledge as we continue to improve our product features and performance," said Plug Power CEO Dr. Roger Saillant. "Our collaboration with DCEC on such an important rural demonstration project is especially important to us as we look for new customers to market our product to." Plug Power is also installing fuel cells in other market applications including the telecommunication and utility markets.

The DCEC Project features a 5 kW fuel cell that will be integrated through a power electronics and battery storage system, provided by Gaia Power Technologies, Inc. This system, known as the PowerTower, will manage the electrical loads dynamically, provide the peak energy needs of the residence, and will be continually charged by the fuel cell during "off-peak" times. Under a separate contract, but for the same project, Gaia Power Technologies has received a $175,000 contract through the Energy Storage Initiative sponsored by the New York State Energy Research & Development Authority (NYSERDA) and the U. S. Department of Energy (DOE). Said Gaia CTO, Ib Olsen, "This project is a great demonstration of how electricity storage can enable novel technologies such as fuel cells and solar power, and of Gaia's role in broadening the market for energy storage applications."

Fuel cells are unique devices for power generation since they convert chemical energy of a fuel without combustion, which is characteristic of traditional methods of generation and results in polluting byproducts. Fuel for the fuel cell (such as propane or natural gas) is converted to hydrogen through a chemical conversion process. Hydrogen is then fed to the fuel cell stack where protons from the hydrogen molecule are separated from the hydrogen and pass through

special membranes. The hydrogen and air passing through the fuel cell creates a voltage potential causing the generation of direct current (DC) power. The DC power is then converted to “alternate current (AC)” power by the power electronics and is connected with the main service of the house. Heat is generated in the process which is then utilized to preheat water for the residence and heat living space within the home.

The fuel cell/ battery system was installed in May 2005 and placed into operation in June 2005. A 1-year demonstration period is planned where the unit will be subjected to varying load and environmental conditions. NYSERDA is administering the project and Sandia National Laboratories and EnerNex Corporation, funded by DOE, are providing monitoring and other expertise during the demonstration period.

As part of the project, the State University of New York (SUNY) at Delhi will work with DCEC on incorporating fuel cell and energy storage technologies into the engineering curriculum at SUNY Delhi. “This is a great way of reaching our local area’s youth through collaboration of area organizations with state-of-the-art technology,” said SUNY Delhi President Candace Vancko.

Mirabito Fuel Group is providing propane fuel, technical consulting, and fuel composition sampling services for the demonstration project. Mirabito Fuel Group President Joe Mirabito said, "We are pleased to be partnering with businesses such as the Delaware County Electric Cooperative and Plug Power and organizations like NYSERDA and the Propane Council on what may become the next great breakthrough in the energy industry. Fuel cell technology is one area that shows great promise and we are proud to be a part of this endeavor. The goal of providing clean, affordable energy to New Yorkers is one the Mirabito Fuel Group embraces wholeheartedly." Roy Willis, President of the Propane Education and Research Council, added, "Because of its portability, availability, and high energy content, propane is a natural choice for fuel cells and other residential power generation systems.”

The National Rural Electric Cooperative Association’s Cooperative Research Network (CRN) is coordinating the efforts of electric cooperatives around the United States to maximize the benefits of this and similar demonstration projects. One such “sister” project is being installed in Manhattan and managed by Tom Thompson of Energy Now! Inc. Tom said, “Fuel cells used in conjunction with on-site energy storage are essential components of the U.S. strategy for

achieving reliable, affordable and clean energy supplies. By creating energy at the point of use, fuel cells also enhance our domestic energy security."

Other major participants include several local businesses and crafts people, including Simonds Electric and Dubben Bros. Plumbing, who were contracted for assistance during installation and initial startup.

The New York Power Authority (NYPA) is DCEC's primary power supplier and NYPA's Research and Development branch is a leader in energy technology implementation, demonstration, validation in New York State. NYPA Senior Vice President Angelo Esposito said, "By working together with New York's municipalities and rural electric cooperatives on projects like this one, NYPA can further New York State's energy policy, which promotes clean and efficient forms of energy production."

For more information, please contact DCEC Engineering Manager Mark Schneider at (607) 746-9297.